

REMARKS

Claims 1-38 are canceled and new claims 39-66 are added to more particularly point out and distinctly claim the subject matter Applicants regard as their invention. Upon entry of the instant amendment claims 39-66 will be pending in the present application. As discussed in detail below, the claims have not introduced new matter, do not contain subject matter that has not previously been searched in connection with this Application, and represent a smaller number of claims than are currently pending. As such, it is estimated that entry and consideration of the instant amendment is proper and is respectfully requested by Applicants.

New claim 39 corresponds to canceled claim 6. New claims 40-43 correspond to canceled claims 2-5, respectively. New claims 45-55 correspond to canceled claims 7-17. New claims 56-58 correspond to canceled claims 26-28. New claims 59 and 60 correspond to canceled claim 24 and 25. New claims 61 to 63 correspond to canceled claims 32-34.

Support for new claim 39 is found at page 4, lines 17-24, at page 5, lines 15-18, and at page 11, lines 25-34. More specifically, support for the use of “non-barrier forming materials,” as recited in independent claims 39 and 59, is found in the specification as filed at page 6, lines 26-27; at page 12, lines 11-16; at page 39, lines 9-13 with respect to stimulation of endothelin-1 release; at page 41, lines 9-13, with respect to induction of vasoconstriction; and at page 42 line 35 to page 43, line 3, with respect to reduction of blood flow out of a breached vessel. Support for the phrase “at least,” as recited in claims 39, 40, 42, 43, and claims 64-66, is found at page 40, lines 2-6, page 41, lines 33-35, and at page 43, lines 25-28 of the specification as filed.

Support for new claims 40-44 is found at page 4, lines 17-24, and at page 4, line 35 to page 5, line 5, of the specification as filed. Support for claims 45-47 is found at page 5, lines 16-18 of the specification as filed. Support for claim 48 is found at page 24, lines 12-23. Support for new claim 49 is found at page 5, lines 19-21 of the specification as filed.

Support for new claim 50 is found at page 35, lines 7-11, at page 41, lines 9-12, and at page 44, lines 19-25 of the specification as filed. Support for new claims 51-54 is found at page 41, lines 14-18 and page 43, lines 5-9 of the specification as filed.

Support for new claim 55 is found at page 40, lines 7-13, at page 41, lines 21-

23, and at page 43, lines 11-18 of the specification as filed. Support for new claims 56-58 is found at page 4, line 31 to page 5, line 2, and at page 14, lines 1-11 of the specification as filed.

Support for new claim 59 is found, *inter alia*, at page 4, lines, 17-24, page 5, lines 15-18, and at page 11, lines 25-34, of the specification as filed.

Support for new claim 60 is found at page 44, lines 7-18 of the specification as filed. Support for new claims 61-63 is found at page 4, line 31 to page 5, line 2, and at page 14, lines 1-11 of the specification as filed. Support for new claim 64 and 65 is found at page 4, lines 25 to 30 of the specification as filed. Support for new claim 66 is found at page 4, lines 17-24 of the specification as filed.

All of the new claims are fully supported by the specification as filed and no new matter has been added.

The Rejection Under 35 U.S.C. § 103(a)

Claims 2-17, 24-28, and 32-34 were rejected under 35 U.S.C. § 103(a) for the reasons provided in the Office Action dated August 8, 2002 ("the prior Office Action"), *i.e.*, claims 2-17, 24-28, and 32-34 were alleged to be obvious over U.S. Patent No. 5,635,493 to Vournakis *et al.* ("Vournakis"), in view of Barton *et al.* (1999) *Curr. Opin. Nephrol. Hypertens.* 8: 549-556 ("Barton") and Pearson *et al.* (2000) *Lupus* 9: 183-188 ("Pearson").

Legal Standards for a Determination of Obviousness Under 35 U.S.C. § 103(a)

In order to support an allegation that an invention is obvious under 35 U.S.C. § 103(a), it must be shown that the "differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art."

However, the mere listing of elements or attributes of elements that may be discovered or alleged in the prior art, without more, simply amounts to "hindsight reconstruction ... using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit." (*Grain Processing v. American Maize-Products* 5 USPQ2d 1788, 1792 (Fed. Cir. 1992) (citation and internal quotation omitted)).

When comparing a claimed invention to the prior art, one must “cast the mind back to the time of the invention,” (*In re Dembiczak* 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)) in order to exclude the influence of hindsight on the determination of obviousness. This is particularly important, where, in view of the inventor’s disclosure, the invention appears technologically simple. In order to avoid this trap, the Court of Appeals for the Federal Circuit has “made it clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine the prior art references.” *Id.*

Moreover, the Court of Appeals for the Federal Circuit has also provided that

Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant’s disclosure. (*In re Vaeck* 20 USPQ2d 1438, 1442) (Fed. Cir. 1991) (internal citations omitted).

Finally, with respect to obviousness rejections under 35 U.S.C. § 103 based upon an alleged inherent teaching of cited art, it has been stated that “[i]nherency of an advantage and its obviousness are entirely different questions. That which is inherent is not necessarily known. Obviousness cannot be predicated on what is unknown” (*In re Sporman* 363 F.2d 444, 448 (CCPA 1966)), and “a retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection” (*In re Rijckaert* 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)).

The Finality of the Rejection Under 35 U.S.C. § 103(a) Should be Withdrawn

At the outset, Applicants note that the finality of the rejection under 35 U.S.C. § 103(a) is improper and should be withdrawn. It is noted that the prior Office Action explicitly stated that Vournakis “does not teach the compositions causing endothelin-1 release or vasoconstriction but rather reduction in the blood flow out of a breached vessel.”¹ Nevertheless, at page 9 of the prior Office Action, the Examiner alleged that

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of the prior art [Vournakis, Barton, and

¹ Prior Office Action (August 8, 2002), at page 6.

Pearson] to arrive at the instantly claimed invention. It would have been obvious to one of ordinary skill in the art at the time of the invention that the method described by Vournakis would also induce the release of endothelin-1 and vasoconstriction since Vournakis teaches that the GlcNac materials may be used to promote hemostasis and wound healing, and the prior art [Barton and Pearson] teaches that normal endothelial cell function is critical for all aspects of vascular homeostasis. (emphasis added)

However, for the reasons provided below as well as for the reasons provided in the Amendment filed February 10, 2003, Applicants respectfully submit that the Examiner does not have a basis for the assertion that it was obvious that the method of Vournakis would induce endothelin-1 release or vasoconstriction. Moreover, in an apparent attempt to correct this oversight, in ¶ 11 of the present Office Action, it has been asserted that the rejection of the pending claims as obvious under 35 U.S.C. § 103 is founded upon the newly-raised allegation that Vournakis inherently teaches stimulation of endothelin-1 release and vasoconstriction.

Applicants submit that this new allegation of inherent teaching of a cited reference constitutes a new ground of rejection that was not necessitated by Applicants' amendment. Accordingly, pursuant to MPEP § 706.07(a), Applicants respectfully request that the finality of the present rejection under 35 U.S.C. § 103(a) be withdrawn.

The Rejection Under 35 U.S.C. § 103(a) Is Improper and Should be Withdrawn

At page 3, ¶ 10, of the present Office Action, which has been made final, the Examiner indicates that claims 2-17, 24-28, and 32-34 are rejected under 35 U.S.C. § 103(a) for the reasons provided in the Office Action dated August 8, 2002 ("the prior Office Action"). ²

At page 6 of the present Office Action, the Examiner concludes that

it would have been obvious ... to administer p-GlcNac to accomplish the modulation of vascular structure or function using the method described by Vournakis in view Barton and Pearson, which would also inherently facilitate the release of endothelin-1 and vasoconstriction. (emphasis added)

As noted above, obviousness cannot be predicated on the unknown (*see In re Sporman*). Therefore, Applicants respectfully submit that this rejection under 35 U.S.C. § 103, which is based upon an alleged inherent teaching of the cited art, is

improper. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103 be withdrawn.

Moreover, even if, *arguendo*, this rejection under 35 U.S.C. § 103 were proper, Applicants respectfully submit that Vournakis, either alone or in view of Pearson and Barton, will not support a *prima facie* case of obviousness of claims 2-17, 24-38, and 32-34 under 35 U.S.C. § 103.

At page 6 of the present Office Action, the Examiner has alleged that one of ordinary skill in the art would have had a reasonable expectation of practicing the claimed method based upon the allegation that the administered compound was known in the art. Applicants respectfully note that, absent the teaching of the instant specification, the fact administration of a non-barrier-forming material comprising pGlcNac induces transient, localized modulation of vascular structure and/or function was unknown in the art. Consequently, Applicants respectfully submit that, since one cannot have any rational expectation of successfully practicing the unknown, one of ordinary skill would not have had any reasonable expectation of practicing the method of independent claims 6 and 24 in view of the cited art.

Accordingly, Applicants respectfully submit that, for the reasons provided above as well as those presented in the Amendment filed February 10, 2003, there is no basis either for combining the teaching of the cited art or for any reasonable expectation that one of ordinary skill in the art could practice the methods recited in independent claims 6 and 24 based upon the cited art.

Notwithstanding the above, in order to expedite allowance, Applicants are submitting new claims 39-66 and have canceled claims 1-38. Applicants respectfully submit that, for the reasons provided below, new claims 39-66 are not obvious under 35 U.S.C. § 103 over Vournakis, either alone or in view of Pearson and Barton.

Vournakis, Either Alone or in Combination with Pearson and Barton, Does Not Teach or Suggest The Presently Claimed Methods

As noted above, the Examiner has cited Vournakis, Pearson, and Barton in support of the allegation that the present invention is obvious under 35 U.S.C. § 103. In view

² Therefore, as noted above, claims 2-17, 24-28, and 32-34 are rejected under 35 U.S.C. § 103(a) allegedly as obvious over U.S. Patent No. 5,635,493 to Vournakis *et al.* ("Vournakis"), in view of Barton *et al.* (1999) *Curr.*

of that rejection, Applicants note that Vournakis teaches a method for achieving hemostasis involving administration of a barrier-forming material comprising p-GlcNac. The material of Vournakis is used, essentially, as a patch, to create a physical barrier to blood flow and to support and protect clot formation. More specifically, Vournakis discloses

p-GlcNac materials having a controllable rate of biodegradation may be useful as, for example barriers having a variety of applications. For example, such barriers may be utilized to promote hemostasis. The successful use of such a hemostatic p-GlcNac application is demonstrated in the Example presented, in Section 19, below. Additionally, p-GlcNac-based material, such as thick gels, sponges, films and membranes may be used for such hemostatic purposes. The pGlc-Nac based materials, when applied directly to bleeding surfaces, arrest bleeding by providing a mechanical matrix that promotes clotting. (Vournakis, col. 35, lines 38-48).

Vournakis, therefore, does not teach or suggest the use of non-barrier-forming materials comprising p-GlcNac for inducing a transient, localized modulation of vascular structure and/or function, as required in each of new claims 39-66.

Neither Pearson nor Barton, alone or in combination, cure the deficiencies of Vournakis. Pearson only provides a general summary of the various physiological functions of endothelial cells (*e.g.*, with respect to coagulation and fibrinolysis, *see* second column at page 185 through the second paragraph of the second column at page 186), while Barton simply describes the role played by endothelin-1 in vasoconstriction, hypertension and renal disease (*see* the abstract at page 549). In fact, neither Pearson nor Barton teaches, suggests or in fact even mentions, the use of any material comprising p-GlcNac, much less a non-barrier-forming material, that is useful for inducing a transient, localized modulation of vascular structure and/or function.

Consequently, Applicants respectfully submit that there is no teaching or even a suggestion in Vournakis, Pearson, or Barton upon which one could base a prediction that topical administration of a non-barrier-forming material comprising p-GlcNac could be used to induce a transient, localized modulation of vascular structure and/or function.

CONCLUSION

Applicants believe that each ground for rejection of the pending claims has been rendered moot. Accordingly, Applicants respectfully request that the rejection of claims 2-17, 24-28, and 32-34, under 35 U.S.C. § 103, be withdrawn.

Applicants submit that, for the reasons provided above, new claims 39-66 are patentable and the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree with Applicants' position, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

Applicants believe that no fee is due for this submission. However, should the Commissioner determine that a fee is due, please charge the required amount to Pennie & Edmonds LLP Deposit Account No. 16-1150.

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Respectfully submitted,

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